

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

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1       Claims 1-19 (canceled).

1       20. (new) A method for establishing a desired transfer  
2 characteristic which converts an acoustical input signal  
3 impinging on a microphone arrangement into an electric output  
4 signal as a function of the angle at which said acoustical  
5 input signals impinge on said microphone arrangement, said  
6 method comprising the steps of:

7              providing at said microphone arrangement a first  
8              microphone sub-arrangement and a second microphone  
9              sub-arrangement, each microphone sub-arrangement  
10             having a transfer characteristic which converts said  
11             acoustical input signal impinging on said microphone  
12             sub-arrangements into an electric output signal of  
13             the respective sub-arrangement, said transfer  
14             characteristics of said first microphone sub-  
15             arrangements being different from said transfer  
16             characteristic of said second microphone sub-  
17             arrangement with respect to said acoustical input  
18             signal;

19             forming a ratio of said output signals of said first and  
20             second microphone sub-arrangements, thereby  
21             generating a ratio result;

22             forming a saturated product with said ratio result as one  
23             factor, thereby clipping said product at a  
24             predetermined or predetermined value and  
25             generating a saturated product result; and  
26             generating said electric output signal as a function of  
27             said saturated product result.

1        21. (new) The method of claim 20, further comprising the  
2 step of saturating said product on a maximum value.

1        22. (new) The method of claim 20, further comprising the  
2 step of forming said saturated product with a second factor  
3 having an arbitrary value different from 0.

1        23. (new) The method of claim 20, wherein said function  
2 of said saturated product result comprises a difference  
3 function of a constant value and said saturated product  
4 result.

1        24. (new) The method of claim 23, wherein said constant  
2 value is selected to be adjustable.

1        25. (new) The method of claim 23, further comprising the  
2 step of saturating said saturated product on a saturation  
3 value and selecting said constant to be at least substantially  
4 equal with said saturation value.

1        26. (new) The method of claim 20, further comprising the  
2 step of forming said ratio from the amplitude values of said  
3 output signals of said sub-arrangements.

1        27. (new) The method of claim 20, further comprising  
2 generating said electric output signal according to the  
3 equation:

4

$$S = c_n \cdot \left\{ A - \left[ \alpha \cdot \frac{|c_z|}{|c_n|} \right]_{satB} \right\}$$

5        wherein:

6        S is said electric output signal,

7        A is a predetermined or adjusted value,

8        $|c_n|$  is the amplitude value of the output signal of one of  
9                said sub-microphone arrangements, the transfer  
10          characteristic of which has maximum gain for a value  
11          of said angle at which said desired transfer  
12          characteristic shall have maximum gain as well,  
13         $|c_z|$  is the amplitude value of the other of said at least  
14          two sub-microphone arrangements,  
15        **satB** is the saturation of the product [] to a  
16          predetermined or adjusted minimum or maximum value  
17          **B**, and  
18         $\alpha$  is a predetermined or adjustable factor.

1       28. (new) The method of claim 20 further comprising the  
2 step of selecting said transfer characteristics of said at  
3 microphone sub-arrangements to have respectively a maximum  
4 gain for acoustical signal impinging on substantially opposite  
5 directions.

1       29. (new) The method of claim 20, further comprising  
2 selecting said transfer characteristics of said microphone  
3 sub-arrangements to be generally of cardioid shape in polar  
4 diagram representation.

1       30. (new) The method of claim 20, further comprising  
2 selecting said transfer characteristics of said microphone  
3 sub-arrangements to be generally of hyper-cardioid shape in  
4 polar diagram representation.

1       31. (new) The method of claim 20 for establishing a  
2 desired transfer characteristic of a hearing device.

1       32. (new) The method of claim 20 for establishing a  
2 desired transfer characteristic for a hearing aid device.

1       33. (new) A microphone arrangement comprising:  
2           two microphone sub-arrangements each having an output,  
3           each of said microphone sub-arrangements also having  
4           a respective transfer characteristic with which  
5           acoustical input signal impinging on said microphone  
6           sub-arrangements are converted into respective  
7           electrical output signals at said outputs as a  
8           function of the angle at which said acoustical input  
9           signals impinge on said microphone sub-arrangements,  
10          said transfer characteristics of said microphone  
11          sub-arrangements being different with respect to  
12          said acoustical input signal;  
13          a computing unit having at least two inputs and an  
14          output, said outputs of said microphone sub-  
15          arrangements being respectively operationally  
16          connected to said inputs of said computing unit,  
17          said computing unit including:  
18            a ratio forming and weighing unit having an output,  
19            a denominator input, a numerator input and a  
20            weighing input, wherein  
21            one of said inputs of said computing unit is  
22            operationally connected to said denominator  
23            input, and wherein  
24            the other of said inputs of said computing unit is  
25            operationally connected with said numerator  
26            input, and further wherein  
27            said ratio forming and weighing unit generates at  
28            said output an output signal saturated at a  
29            maximum and/or minimum value, the output of  
30            said ratio forming and weighing unit being  
31            operationally connected to the output of said  
32            microphone arrangement.

1        34. (new) The arrangement of claim 33, wherein the output  
2 signal of said ratio forming and weighing unit is saturated on  
3 a maximum signal value.

1        35. (new) The arrangement of claim 33, wherein said  
2 weighing input of said ratio forming and weighing unit is set  
3 with a signal representing a weighing factor different from  
4 zero which is predetermined or adjustable.

1        36. (new) The arrangement of claim 33, wherein the output  
2 of said ratio forming and weighing unit is operationally  
3 connected to said output of said computing unit via a  
4 difference forming unit.

1        37. (new) The arrangement of claim 36, wherein said  
2 difference forming unit has a first input operationally  
3 connected to the output of said ratio forming and weighing  
4 unit and has a second input for a predetermined or adjustable  
5 signal.

1        38. (new) The arrangement of claim 37, wherein the value  
2 of said predetermined or adjustable signal is at least  
3 substantially equal to a value at which the output signal of  
4 said ratio forming and weighing unit is saturated.

1        39. (new) The arrangement of claim 33, wherein said  
2 inputs of said computing unit are operationally connected  
3 respectively to said denominator and numerator inputs of said  
4 ratio forming and weighing unit via magnitude forming units.

1        40. (new) The arrangement of claim 33, wherein said  
2 output of said ratio forming and weighing unit is  
3 operationally connected to one input of a multiplication unit

4 having at least two inputs and an output, the second input of  
5 said multiplication unit being operationally connected to the  
6 output of the microphone sub-arrangement, the output of which  
7 is operationally connected to said denominator input, said  
8 output of said multiplication unit being operationally  
9 connected to said output of said computing unit.

1       41. (new) The arrangement of claim 36, wherein the output  
2 of said difference forming unit is operationally connected to  
3 an input of a multiplication unit having two inputs and an  
4 output, the second input being operationally connected to the  
5 output of the microphone sub-arrangement, the output of which  
6 is operationally connected to said denominator input, the  
7 output of said multiplication unit being operationally  
8 connected to the output of said computing unit.

1       42. (new) The arrangement of claim 33 further comprising  
2 time to frequency converter units interconnected between said  
3 outputs of said microphone sub-arrangements and said inputs of  
4 said computing unit.

1       43. (new) The arrangement of claim 33, wherein said  
2 microphone sub-arrangements have respective transfer  
3 characteristics with a cardioid shape in polar representation.

1       44. (new) The arrangement of claim 33, wherein said  
2 microphone sub-arrangements have respective transfer  
3 characteristics with a hyper-cardioid shape in polar  
4 representation.

1       45. (new) The arrangement of claim 33 being part of a  
2 hearing device.

1       46. (new) The arrangement of claim 33 being part of a

2 hearing aid device.

1       47. (new) A method for establishing a desired transfer  
2 characteristic which converts acoustical input signals  
3 impinging on a microphone arrangement into an electric output  
4 signal as a function of the angle at which said acoustical  
5 input signals impinge on said microphone arrangement, said  
6 method comprising the steps of:

7             providing at said microphone arrangement at least two  
8             microphone sub-arrangements, each microphone sub-  
9             arrangement having a transfer characteristic which  
10            converts said acoustical input signals impinging on  
11            said microphone sub-arrangements into an electric  
12            output signal of a respective sub-arrangement, said  
13            transfer characteristics of said at least two  
14            microphone sub-arrangements being different;  
15             forming a ratio of said output signals of said at least  
16            two sub--arrangements, thereby generating a ratio  
17            result;  
18             forming a saturated product with said ratio result as one  
19            factor, thereby performing saturating said product  
20            at a predetermined or predeterminable value and  
21            generating a saturated product result;  
22             generating said electric output signal as a function of  
23            said saturated product result.

1       48. (new) A microphone arrangement comprising:  
2             a first microphone sub-arrangement having a first output  
3             in the time domain having a first transfer  
4             characteristic with respect to an impinging acoustic  
5             signal;  
6             a second microphone sub-arrangement having a second  
7             output in the time domain having a second transfer

8                   characteristic with respect to an impinging acoustic  
9                   signal, wherein  
10                  said first transfer characteristic and said second  
11                  transfer characteristic are different;  
12                  a first time to frequency converter unit for converting  
13                  said first output into a first frequency domain  
14                  signal;  
15                  a second time to frequency converter unit for converting  
16                  said second output into a second frequency domain  
17                  signal;  
18                  a computing unit having a first input, a second input,  
19                  and an output, wherein  
20                  said frequency domain signals of said time to frequency  
21                  converter units are connected to said inputs of said  
22                  computing unit, respectively, wherein  
23                  said computing unit generates a ratio signal that is  
24                  proportional to an amplitude or an absolute value of  
25                  one of said first and second frequency domain  
26                  signals, and further wherein  
27                  said ratio signal is inversely proportional to an  
28                  amplitude or an absolute value of the other of said  
29                  first and second frequency domain signals, and still  
30                  further wherein  
31                  said ratio forming and weighing unit multiplies said  
32                  ratio signal by a non-zero value to create a  
33                  weighted ratio; and wherein  
34                  said ratio forming and weighing unit generates a  
35                  saturated signal by clipping said weighted ratio at  
36                  a maximum and/or minimum value.

1                  49. (new) The microphone arrangement of claim 48, wherein  
2                  said computer unit further generates a difference signal by  
3                  subtracting said saturated signal from a constant.

1        50. (new) The microphone arrangement of claim 49, wherein  
2 said computer unit further generates an output signal by  
3 multiplying said difference signal by one or the other of said  
4 first and said second frequency signals.

1        51. (new) The microphone arrangement of claim 49, wherein  
2 said computer unit further generates an output signal by  
3 multiplying said difference signal by the other of said first  
4 and second frequency domain signals.

1        52. (new) A method for establishing a desired transfer  
2 characteristic which converts an acoustical input signal  
3 impinging on a microphone arrangement into an electric output  
4 signal as a function of the angle at which said acoustical  
5 input signals impinge on said microphone arrangement, said  
6 method comprising the steps of:

7              at said microphone arrangement providing:

8              a first microphone sub-arrangement having a transfer  
9              characteristic which converts said acoustical  
10             input signal impinging on said first microphone  
11             into an output signal represented by  $c_n$ ; and

12             a second microphone sub-arrangement having a transfer  
13             characteristic which converts said acoustical input  
14             signal impinging on said second microphone into an  
15             output signal represented by  $c_z$ ; and  
16             generating said electric output signal according to the  
17             equation:

$$18 \quad S = c_n \cdot \left\{ A - \left[ \alpha \cdot \frac{|c_z|}{|c_n|} \right]_{satB} \right\}$$

19             wherein:

20             S is said electric output signal,

21        A is a predetermined or adjusted value,  
22         $|c_n|$  is the amplitude value of the output signal  $c_n$ ,  
23         $|c_z|$  is the amplitude value of the output signal  $c_z$ ,  
24        satB is the saturation of the product [] to a  
25                    predetermined or adjusted minimum or maximum value  
26                    B, and  
27         $\alpha$  is a predetermined or adjustable factor.

1            53. (new) The method of claim 52 wherein the transfer  
2 characteristic of the first microphone sub-arrangement has  
3 maximum gain for a value of said angle at which said desired  
4 transfer characteristic shall have maximum gain as well.

1            54. (new) A microphone arrangement implementing the  
2 method of claim 52.

1            55. (new) A microphone arrangement implementing the  
2 method of claim 53.

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